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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/779,430	02/13/2004	Khaled Sedky	14917.0523US01	8758

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MERCHANT & GOULD (MICROSOFT)
P.O. BOX 2903
MINNEAPOLIS, MN 55402-0903

EXAMINER	
RUDOLPH, VINCENT M	
ART UNIT	PAPER NUMBER
2625	
MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/779,430	SEDKY ET AL.	
	Examiner	Art Unit	
	Vincent Rudolph	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 April 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4-15 and 17-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4-15 and 17-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 4-15 and 17-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morgan ('674) in view of Savov ('462), Cranston (Pub. # 20020144006) and admitted prior art.

Regarding claim 1, Morgan ('674) discloses a system for printing data on a printer including **(See Figure 1**) that includes **a)** a plurality of clients (printing client, **See Figure 1, Element 18a-18b**) that includes a plurality of application programs having a print capability (issuing a print request on the printing client, **See Col. 6, Line 17-20**), **b)** a server (local area print server, **See Figure 1, Element 10**) that implements a server print spooler for coordinating the print requests originating from the plurality of application programs and communicated to the server print spooler by the plurality of clients (the printing client forwards the printing data and instructions to the print server, **See Col. 7, Line 15-17**, such that once it is received, it is coded into information understood by the print controller, **See Col. 9, Line 40-55**) such that the plurality of clients use asynchronous remote procedure calls to communicate the print request to the server print spooler (transfer the files to the printing system, **See Col. 25, Line 1-6**) and when the server print spooler receives an asynchronous remote procedure call with

a print request from the client, the server transmits a first response to the client (once the printing request is received, the event handler within the print server notifies the printing client on the status of the request, **See Col. 16, Line 43-51**, such as having the request be accepted or canceled, **See Col. 16, Line 51-57**), and the server transmits a second response to the client after the print request is processed (the printing client is notified that the printing request has been serviced successfully, **See Col. 17, Line 2-6**), and **c)** a plurality of printers coupled to the server for printing under the direction of the server print spooler (a plurality of printers, **See Figure 1, Element 16a-16b**, are coupled to the local area print server, **See Figure 1**, and produce a printed copy received from the print server, **See 7, Line 20-23**).

Morgan ('674) does not disclose the server print spooler including a thread manager having a first thread for accepting the print requests and a second thread pool used for processing the print requests.

Savov ('462) discloses a server (**See Figure 2, Element 202**) that includes a thread manager for maintaining a first thread for accepting the print requests (incoming requests) and a second thread pool for processing the print requests (process the requests, **See Col. 3, Line 34-36**).

It would have been obvious to one of ordinary skill in the art at the time of the invention by the applicant to include a thread manager with multiple threads, such as the one disclosed within Savov ('462), and incorporate it into Morgan ('674) because it provides a high availability server as well as lower the request-processing times (See Savov ('462), **Col. 3, Line 45-49**).

Morgan ('674) further does not disclose a completion port that limits the number of threads in the pool used for processing the print requests.

Cranston (Pub. # 20020144006) discloses a completion port to pool threads that are available for processing (**See Page 4, Paragraph 0038**).

It would have been obvious to one of ordinary skill in the art at the time of the invention by the applicant to include a completion port, such as the one disclosed within Cranston (Pub. # 20020144006), and incorporate it into the system of Morgan ('674) because it only pools threads that are available for processing (**See Cranston (Pub. # 20020144006), Page 2, Paragraph 0016**) rather than pool all incoming threads in order to process each one accordingly.

Morgan further does not disclose having the server transmit a response to the user in order to prevent blocking an application program thread originating the print request from performing other processing.

The admitted prior art discloses that asynchronous RPC lets an RPC application execute a function but not wait until the function completes to continue processing, but rather execute other functions while waiting for the response from the server (**See Page 2 of the Specification, Lines 22-30**).

It would have been obvious to one of ordinary skill in the art at the time of the invention by the applicant to continue executing the function without waiting for a response, such as the one disclosed within the admitted prior art, and incorporate it into the system of Morgan ('674) because it prevents the client computer from waiting to

receive a response before performing other functions, and instead perform multiple tasks while anticipating a response from the server.

Regarding claim 4, the combination of Morgan ('674), Savov ('462) and Cranston (Pub. # 20020144006) discloses that the server print spooler maintains a list of print requests awaiting servicing (the printing requests awaiting servicing, **See Morgan ('674), Col. 7, Line 7-11**) and wherein the list of print requests are added to the second thread pool (stores incoming requests, **See Savov ('462), Col. 5, Line 37-39**) that shares processor time of the server (executed independently on the processor to allow multiple operations occur at the same time, **See Savov ('462), Col. 1, Line 40-43**).

Regarding claim 5, the combination of Morgan ('674), Savov ('462) and Cranston (Pub. # 20020144006) discloses that the first and second pool thread are each serviced by a single processor thread (multiple threads are serviced, **See Savov ('462), Col. 3, Line 33-36**, using a processor to execute them concurrently, **See Savov ('462), Col. 1, Line 40-43**).

Regarding claim 6, Morgan ('674) discloses that the client print spooler implements certain procedures asynchronously (submitting a printing request asynchronously, **See Col. 6, Line 17-20**) and some of the procedures are implemented in a synchronous manner (submit a status request and receive a response from the print server, **See Col. 9, Line 66-Col. 10, Line 2**).

Regarding claim 7, Morgan ('674) discloses the clients send data to the server print spooler in multiple asynchronous requests until an entire print job is completed

(sends the print data along with the printing instructions for the print data to the print server, **See Col. 6, Line 55-Col. 7, Line 5**).

Regarding claim 8, the combination of Morgan ('674), Savov ('462) and Cranston (Pub. # 20020144006) discloses a scheduler **(See Savov ('462), Figure 1, Element 102)** for sending print requests to the second thread pool for processing (operating on a thread pool, **See Savov ('462), Col. 4, Line 47-54**, for storing incoming requests until the second thread pool is available to process it, **See Savov ('462), Col. 5, Line 37-39**).

Regarding claim 9, the combination of Morgan ('674), Savov ('462) and Cranston (Pub. # 20020144006) discloses the scheduler chooses print requests from the first thread pool and adds them to the second thread pool (move the print job from the first thread pool to a storage for storing incoming requests until the second thread pool is available to process it, **See Savov ('462), Col. 3, Line 34-39**).

Regarding claim 10, the combination of Morgan ('674), Savov ('462) and Cranston (Pub. # 20020144006) discloses the scheduler sends raw data to the second thread pool in an overlapped manner (sends a multiple requests at once in order to have the second thread pool process them, **See Savov ('462), Col. 3, Line 25-36**).

Regarding claim 11, the rationale provided in the rejection of claims 1-10 are incorporated herein. In addition, Morgan ('674) discloses **c)** scheduling the print request using a scheduler (notify the printing client about a printing request, **See Col. 17, Line 3-10**) and **d)** processing the print request, wherein the scheduler allocates print server run time to the print request for processing the print request (the print server identifies

the next printing request to be serviced, **See Col. 7, Line 6-17**, so that printing data and instructions are processed accordingly, **See Col. 9, Line 48-54**).

Regarding claim 12, Morgan ('674) does not disclose the scheduler uses one or more thread pools to schedule and process the print requests.

Savov ('462) discloses having the scheduler implement one or more thread pools (**See Col. 4, Line 49-54**) in order to schedule and process incoming requests (accept and process incoming requests, **See Col. 3, Line 33-36**).

It would have been obvious to one of ordinary skill in the art at the time of the invention by the applicant to include scheduling and processing print requests, such as the one disclosed within Savov ('462), and incorporate it into Morgan ('674) because it allows the server to acknowledge requests quickly (**See Savov ('462), Col. 3, Line 33-34**) and fulfill the requests efficiently.

Regarding claim 20, Morgan ('674) discloses a client / server computing system (**See Figure 1**) for implementing a server print spooler (process print data from the respective clients, **See Col. 9, Line 40-47**) that includes **a)** receiving asynchronous remote procedure calls with print requests by means of a communications channel that conveys print requests to a server print spooler (receiving a print request from a print client through the communication bus, **See Col. 9, Line 40-42**), **b)** for each print request received, returning a first response to an application thread originating the print request before scheduling print output for the print request (once the printing request is received, the event handler within the print server notifies the printing client on the status of the request, **See Col. 16, Line 43-51**, such as having the request be accepted,

or the rejected, such as being canceled, **See Col. 16, Line 51-57**), **c)** placing the print requests into a queue of such print requests (a first-in-first-out list, **See Col. 17, Line 6-10**), and **d)** scheduling print output from a subset of the print requests at a selected print location (retrieves the highest priority print request to be processed, **See Col. 17, Line 6-10**).

Morgan ('674) further does not disclose having the server transmit a response to the user in order to prevent blocking an application program thread originating the print request from performing other processing.

The admitted prior art discloses that asynchronous RPC lets an RPC application execute a function but not wait until the function completes to continue processing, but rather execute other functions while waiting for the response from the server (**See Page 2 of the Specification, Lines 22-30**).

It would have been obvious to one of ordinary skill in the art at the time of the invention by the applicant to continue executing the function without waiting for a response, such as the one disclosed within the admitted prior art, and incorporate it into the system of Morgan ('674) because it prevents the client computer from waiting to receive a response before performing other functions, and instead perform multiple tasks while anticipating a response from the server.

Morgan ('674) does not disclose place the subset of print requests (the selected print request) in a thread pool serviced by the processor thread that switches between servicing the print requests in the thread pool.

Savov ('462) discloses placing the selected request in a thread pool (**See Figure 1; Col. 4, Line 45-54**) serviced by a processor thread (embedded within the server) that switches between servicing the print requests in the thread pool (switches between placing the request from an incoming request thread pool area to a processing thread pool area, **See Col. 3, Line 30-36**).

It would have been obvious to one of ordinary skill in the art at the time of the invention by the applicant to include a thread pool, such as the one disclosed within Savov ('462), and incorporate it into Morgan ('674) because it allows the server to guarantee availability for fulfilling and processing the incoming requests.

Regarding claims 13-15, 17-19 and 21-28, the rationale provided in the rejection of claims 1 and 4-10 are incorporated herein. In addition, the system of claims 1 and 4-10 corresponds to the method of claims 13-15 and 17-19 as well as the computer readable medium (embodied within the print server, **See Figure 1, Element 10**) of claims 21-28 and performs the steps disclosed herein.

Response to Arguments

Applicant's arguments with respect to the amended claims have been considered but are moot in view of the new grounds of rejection. Thus, the prior art of Morgan, Cranston and admitted prior art is used in combination with Savov and do meet the limitations of the amended claims as disclosed within the rejection above.

Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure is: Manglapus ('151).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vincent Rudolph whose telephone number is (571) 272-8243. The examiner can normally be reached on Monday through Friday 8 A.M. - 4:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Moore can be reached on (571) 272-7437. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Vincent Rudolph
Examiner
Art Unit 2625

/Vincent Rudolph/
Acting Examiner of Art Unit 2625

/Twyler L. Haskins/
Supervisory Patent Examiner, Art Unit 2625